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ABSTRACT

The purpose of the two studies reported was to investigate why young children, especially kindergarteners, so often treat vague, ambiguous, or otherwise unclear instructions as though they were perfectly informative, instead of asking what they mean. It was hypothesized that when faced with vague instructions children might employ two ordered classification strategies: (1) heavy reliance on collateral information such as physical context and speaker's gestures to figure out what the speaker means; and (2) in case the first strategy doesn't work, guessing. Results of the first experiment support the claim that children do in fact use a salience strategy. The data are also consistent with the claim that children use a guessing strategy. The second experiment sought more directly to demonstrate children's use of the guessing strategy. Findings suggest that, contrary to characterizations which portray young children as profoundly egocentric, in communication settings young children do make inferences about the mental state of speakers. Further, children whose communication is profoundly bound to a particular physical context may be unaware that there are circumstances in which contextual features are unnecessary for interpreting language. Such children may find it extremely hard to learn how to read simply because they don't understand the nature of the enterprise. (RH)

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Conversational Strategies
in
Comprehension Monitoring

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Conversational Strategies in Comprehension Monitoring

We would like to thank John Flavell, Eve Clark, and Ellen Markman for their helpful advice about the first study reported here, and Jane McCoy, Terry Patrick, and Paula Tynes for their help in testing the children.

The purpose of this work was to explore a hypothesis about why young children, especially kindergartners, so often treat vague, ambiguous, or otherwise unclear instructions as if they were perfectly informative, instead of asking what they mean. Flavell, Speer, Green, and August (1981) had worked on this problem previously. They proposed that young children may not compare the prospective referents of an instruction adequately, or that they may not be concerned enough about the feelings of puzzlement and uncertainty they experience when they hear a vague instruction. They suggested further that when they ARE sufficiently puzzled, these children may be willing to resolve their uncertainties arbitrarily, turning initial guesses at the speaker's meaning into eventual certainties. In addition, they suggested that the children may have an especially hard time analyzing vague messages for possible alternative interpretations. And finally, they claimed that young children are so poorly informed about the nature of verbal communication that they don't know how the speaker and his message can affect

communication outcomes. They thus focus only on the proximal cause of misunderstandings, and thus always blame the listener when misunderstandings happen.

Although these conclusions were supported by the research reported, they were rendered inadequate by their very multiplicity. What was needed was a model of young children's listening behavior that explained, or subsumed, them all. We now present a hypothesis that does subsume all of these characterizations. What's more, it depicts the listening behavior of kindergarten children as the result of communication strategies which had previously been adaptive, not just as more dreary entries in the interminable list of things little kids are poor at.

Recall that babies are sophisticated communicators long before they produce language; they point, show, share, and even organize elaborate pantomimes to signal what they want, or what they intend. Also recall that the process of taking turns in a conversation is well established early in development. Early on in development, then, children come to attend primarily to the nonlinguistic aspects of the communicative situation, and to regard communication as a reciprocal enterprise. As Grice (1975) has shown convincingly, however, reciprocal conversations simply cannot proceed unless listeners employ a cooperative principle by which they assume speakers seek to be informative, relevant, truthful, and

clear. Since conversational reciprocity is such an early acquisition, so too may be the cooperative assumption. Indeed, very young children may be entirely unaware that those who address them might communicate vaguely or ambiguously.

If the habits of attending especially to nonverbal cues about a speaker's intention, and of making an especially strong assumption of speaker cooperativeness, persist throughout the preschool years, then one would expect children to employ these habits when we confront them with unclear instructions. When faced with vague instructions, they might well employ two, ordered clarification strategies:

First, rely heavily on collateral information, especially on physical context and the speaker's gestures, to figure out what the speaker means. Using this strategy, children might often misinterpret accidental salencies or gestures as intentional cues.

Second, if that doesn't work, guess. You can count on the cooperative speaker to correct you if you're wrong, so, if she doesn't correct you, you can be sure you were right.

Use of these strategies by young children accounts for all of the characterizations of their listening difficulties mentioned previously. The first strategy says, in effect, that the child believes the intended

referent is the salient one. It may be a short, if incorrect, inferential leap for a five-year-old to conclude that the salient referent is the intended one. If so, she has solved her problem, and has no need to compare referents further. One doesn't have to claim either that the child is not aware enough of her feelings of puzzlement. Use of the two strategies should clear up any puzzlement she experiences very quickly. What's more, contrary to the bald claim that the child is willing to resolve uncertainty arbitrarily, if she uses contextual cues, she can achieve an entirely nonarbitrary resolution. And even if she falls back on the guessing strategy, she does so specifically because she believes the speaker will correct her arbitrary resolution if it's wrong.

Moreover, using the two strategies gives the child a way of discovering the speaker's meaning that is easier and more direct than critical analysis. If the context strategy works, no analysis is necessary. If it does not, the guessing strategy offers a simple way of finding out what the speaker means. Finally, the strong assumption of speaker cooperativeness which underlies the two strategies is entirely consistent with blaming the listener for misunderstandings. If cooperative speakers cannot err, then error can arise only if the listener overlooks, or misinterprets, some cue to the speaker's meaning.

We reasoned that if young children employed the first,

contextual strategy, they ought to be more confident that they had selected correctly from among inadequately specified referents when their selection was especially salient than otherwise. This should be true, however, only when they believe the speaker is being cooperative.

To test this prediction, we had 24 kindergartners play a game using a toy car on a game board marked off with roads. In the game the experimenter was the police chief, and the child and a hand puppet (operated by a confederate) were policemen. The police chief would tell the policemen in which of four toy buildings (houses, stores, or garages) on the game board Santa Claus had left a Christmas present. The policemen had to take the toy car to the correct building and guard it to keep the Grinch from stealing the Christmas present.

During the experimental trials no present was actually in the building, and the children thought they were engaged in "police practice." We stressed, however, that only one building was the correct one to guard.

We ran the experiment in two phases. Before the first, COOPERATIVE, phase, the experimenter stressed that he wanted to help in any way possible and would always answer the children's questions truthfully. Before the UNCOOPERATIVE phase he told the children that they would sometimes be unable to tell which building was intended, and that when this happened, they should call for help

from a police helicopter.

Within each phase there were twelve trials. On three of these, only one building of the type mentioned in the instruction was present on the board. Call these SPECIFIC trials. On a second three trials there were two target buildings, identical and equidistant from the child. Call these NEUTRAL trials. On a third set of three trials there were two identical buildings, but one was nearer the child than the other. Call these DISTANCE SALIENCE trials. On the final set of three trials, there were two target buildings equidistant from the child, but one was red and the other was white. Call these COLOR SALIENCE trials. We had learned in pretesting the two salience conditions that for five-year-olds the nearer building and the red building were more salient than their respective counterparts.

On each trial the child either asked which building was intended, called the helicopter, or moved the car to one of the buildings on the board. In the latter cases the hand puppet then asked if "we were guessing or sure that's the right building." We recorded the children's responses and their selections of buildings. We also post-tested them to be sure they knew the difference between guessing and knowing.

The crucial prediction from the first, CONTEXT, strategy is that young children who do not indicate

uncertainty by asking which building is intended, or by calling the helicopter, should less often say they are sure in the NEUTRAL than in the two salience conditions. They should do this, however, only when they think the speaker is being cooperative.

The data are shown in Figure 1. This figure shows for each type of trial the mean number of times the children selected a building and then said they knew for sure they had selected correctly. The line marked "C" shows these data for the first, COOPERATIVE, phase of the experiment, and the line marked "U" shows them for the second, UNCOOPERATIVE, phase. Notice that as predicted the children were less confident during the cooperative phase when saliency cues were absent than when they were present. Analysis of variance and follow-ups revealed this effect to be significant at an alpha level of less than 0.01. Also notice that the confidence shift effect goes away during the uncooperative phase, just as it should if the conversational hypothesis is right.

These data, then, support the claim that children do in fact use the first, saliency strategy. The data are also consistent with children's use of the second, guessing strategy, for the children more often guessed when saliency cues were absent than when they were present. Our second experiment sought to demonstrate children's use of this second strategy more directly.

We reasoned that when children employ the guessing strategy their confidence in their referential selection should initially be low, but it should rise after conversational events demonstrate that corrective feedback from the speaker is not to be forthcoming. To test this hypothesis, 48 additional kindergarten children played another version of the game described previously. This version differed from the previous one in the following ways: First, there was only a single, COOPERATIVE phase, consisting of six experimental trials. Second, all of these trials were equivalent to the previous, NEUTRAL condition -- on each, two identical target buildings were located equidistant from the child. Third, on half the trials -- the EXPERIMENTER PRESENT condition -- the experimenter remained seated, looking expressionlessly at the center of the game board until after the puppet had asked the confidence question. On the other half of the trials -- the EXPERIMENTER ABSENT condition -- the experimenter left the game table to secure materials for the next trial BEFORE the puppet asked the question. The time elapsed between the child's selection and the asking of the question did not differ systematically between conditions.

The results of this study are as predicted by the guessing strategy hypothesis. The experimenter's presence at the table ought to have signaled that corrective

feedback might still be forthcoming, so in this condition the child's confidence in her selection ought to be relatively low. The experimenter's departure from the table, however, should have signaled that corrective feedback was no longer available, so a child using the guessing strategy should have concluded that his selection was correct.

Figure 2 shows the data from this study. Consistent with the guessing hypothesis, the children were indeed more confident in the EXPERIMENTER ABSENT than in the EXPERIMENTER PRESENT condition. Analysis of variance revealed this difference to be significant at an alpha level of less than 0.02.

The results of our studies demonstrate that young children's interpretations of vague utterances are strongly influenced by the conversational character and context of the communication in which they engage. Their being so context bound contributes importantly, we believe, to their maladaptive behavior as listeners.

There are at least two interesting implications of this phenomenon. First, as you will no doubt have noticed, children who employ these two clarification strategies do so because they believe the speaker intends them to do so. That is to say, contrary to the frequent characterizations of young children as profoundly egocentric, these children are making inferences about the

mental state of the speaker. We are presently doing research on this question.

Second, as Margaret Donaldson (1978) has argued, children whose communication is so profoundly bound to a particular physical context may be unaware that there are circumstances -- written communication, for example -- in which contextual features are unnecessary for interpreting language. Such children might find it extremely hard to learn how to read, simply because they don't understand the nature of the enterprise. We are currently attempting to train kindergartners to rely solely on verbal information in oral communication, and will be looking at the effects, if any, on the ease with which they subsequently learn how to read.

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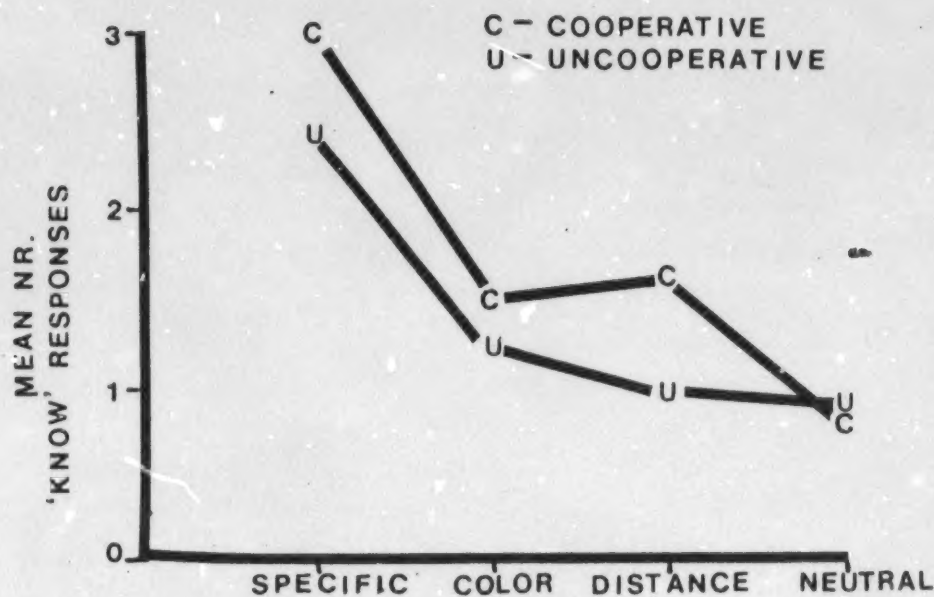


Figure 1

Kindergarten children's confidence judgments in the two phases (C= speaker cooperative, U= speaker uncooperative) of Experiment 1.

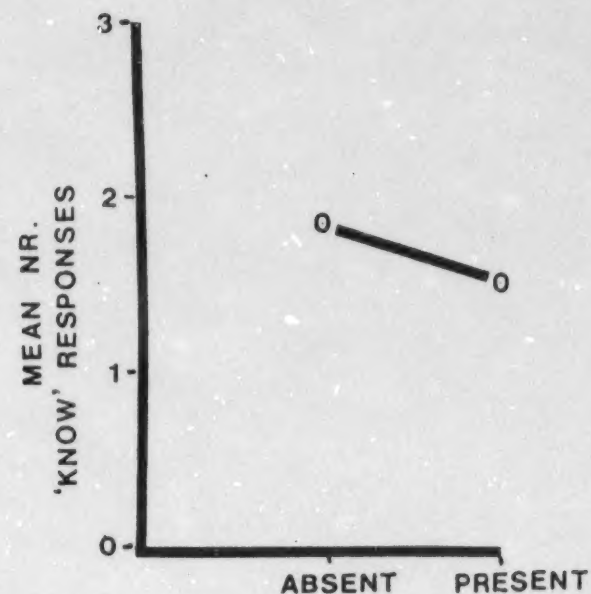


Figure 2

Kindergarten children's confidence judgments in Experiment 2.